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ABSTRACT

A distance learning program implemented in 1987-88 to teach Health Care Science was modified to include the clinical experience appropriate for Health Occupations I during 1988-89. The teaching team included an instructional coordinator/teacher and four regional clinical coordinators. A total of 19 juniors and seniors at 7 rural school districts participated. Health Occupations I was taught as a two-unit course encompassing 2 hours of instruction daily. The instructional coordinator/teacher met with students via audioconference 1 hour per day 5 days each week for the first 8 weeks. The second hour was used for supplemental activities. After the first 8 weeks, students spent 2-hour blocks 3 days per week observing and assisting at clinical rotation sites, instead of going to the traditional classroom. Each student participated in six different 4-week rotations. Fourteen self-study packets were developed to prepare students for the clinical rotations and supplement the learning. Trained site facilitators provided administrative supervision at participating schools. Student performance was monitored by observation of general conduct, traditional evaluation of scholastic performance, and written observational summaries of clinical rotations. Sixteen students completed the program. Students gave high ratings to classroom and clinical experiences. (YLB)

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FINAL REPORT

A Model Vocational Education Laboratory Distance Learning System

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Sponsored Cooperatively by
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and

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Extension Instruction and Materials Center
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CE 057 423

A Model Vocational Education Laboratory Distance Learning System

Problem Area Toward Which the Project Was Directed

There is an urgent need for health professionals in rural communities, and several health occupations are on the priority list approved by the Texas State Board of Education (SBOE). Despite these facts, many small or rural school districts have been unable to offer health occupations programs because of district size and cost restrictions. As a result, the needs of students hoping to enter health professions and the needs of rural communities for health professionals have not been met by traditional approaches. The distance learning program designed and implemented in 1987-1988 to teach Health Care Science (HCS) started development of a delivery system for health occupations education; however, that system did not include the off-campus clinical experiences needed in Health Occupations I (HO I) classes. This project was directed to help meet the needs of students and rural communities by designing and implementing an expanded delivery system that included that feature.

Goals and Objectives of the Project

The general objectives of this project were —

1. To identify criteria and procedures for utilizing a distance learning system to teach Health Occupations I. The system was to provide students with laboratory/clinical experiences for learning skills related to health occupations.

2. To develop a vocational education laboratory learning program model that would utilize a variety of technological advancements including (a) computer-assisted instruction, (b) videotaped course content, (c) local clinical facilities, and (d) other proven sources for instruction through video techniques.

Description of the General Project Design and the Procedures Followed

The initial delivery system, developed during the 1987–1988 pilot project, was designed to teach Health Care Science. It was well received by students and school personnel, as demonstrated by the fact that all three districts that were part of the project chose to continue with this second phase. The pilot system was built around audioconferencing. Classroom instruction was presented via real-time interactive audio. It was supplemented by electronic mail, computer-assisted instruction, videotapes, and print materials, with selection of the specific medium at any point being based on its utility and appropriateness for the content to be conveyed. The supplemental components were chosen because of their reliability, ease of use, and easy availability to districts of any size and location. In addition, the necessary equipment was relatively inexpensive, and, for the most part, could be used for other purposes when not involved in distance learning. An advisory committee was appointed and met to help modify the original delivery system to include the clinical experience appropriate for Health Occupations I.

These clinical experiences, also called rotations, required placement of students at health care facilities—hospitals, veterinary clinics, dental offices, nursing homes, etc.—for a portion of the school day. Students began these clinical rotations after eight weeks of

intensive daily classroom preparation. Three days a week each student went to a clinical facility during her/his two-hour class period, instead of going to the traditional classroom. The other two days of the week were used for classroom learning activities. Each student participated in six different four-week rotations. Fourteen self-study packets, each about 50 pages in length, were developed to prepare students for the clinical rotations and to supplement the learning that occurred in those settings.

Administrative supervision at the participating schools was provided by site facilitators designated by district officials. These site facilitators served as contact persons and primary communication links between the schools and project personnel. They were responsible for monitoring student attendance and general conduct during Health Occupations I classes, for ensuring that equipment and facilities were available and in working order, and for general troubleshooting at the sites. The site facilitators also maintained contact with the persons in charge of the students at the clinical sites and handled administrative problems which arose in those contexts.

Site facilitators were trained by project personnel during an all-day inservice work session held in Austin. An extensive *Site Facilitator's Handbook* was written expressly for this training, and each site facilitator was provided with a copy during the training session. During the program, they became thoroughly oriented to their roles, met project personnel, and became acquainted with the audioconferencing and electronic mail systems. The program manager maintained regular contact with site facilitators throughout the project. He consulted and advised them as a group by audioconferencing and individually by telephone as necessary. Once during the year he visited and inspected each site and clinical facility that chose to participate. Site facilitators also submitted regular written status reports, which were used to monitor progress and problems.

Academic supervision and instruction were provided by the instructional coordinator/teacher, who is an experienced, certified health occupations teacher. She developed the program of instruction, wrote the daily lesson plans, and integrated the clinical component into the overall plan. She was assisted in the latter task by four regional clinical coordinators who are also experienced health occupations teachers. The scope and sequence that was developed included all required essential elements listed in Chapter 75 of the SBOE rules and followed TEA vocational area recommendations for this course.

Each clinical coordinator was responsible for organizing and monitoring the clinical experiences of students in one to three districts. Like the site facilitators, the clinical coordinators participated in a one-day training session in Austin. They then made an initial visit to each of the rural communities to orient both school and cooperating health professionals to the philosophy and purpose of the clinical rotations. At that time, they reviewed rotation stations and developed task sheets for each. They planned and conducted three to four subsequent visits to each site to monitor the clinical program. They also reviewed weekly reports submitted by clinical personnel. If problems occurred with the rotations, the clinical coordinator returned to the clinical site to resolve them.

Program Faculty

The teaching team for the proposed course included an instructional coordinator/teacher and four regional clinical coordinators. The instructional coordinator/teacher had taught Health Care Science (HCS) and cooperative health occupations in a traditional classroom setting, and she had taught HCS via distance learning during the first year of this project. She is a certified health occupations teacher, a Doctor of Education, and a licensed medical technologist. She served on the distance learning advisory committee this year and last. She has proven her ability to effectively use the interactive audio delivery system.

The instructional coordinator/teacher was responsible for organizing and developing the instructional plan, presenting most of the classroom portion of the course, coordinating the activities of the clinical coordinators, integrating the clinical component into the overall learning experience, and evaluating student progress and performance. She received assistance in this process from an instructional designer and expert in distance teaching at the Extension Instruction and Materials Center (EIMC).

The basic requirement for the clinical coordinators was teacher certification in health occupations. Experience in organizing and running a clinical rotation program was an additional qualification, as were time to carry out the assignment, geographical proximity to the site supervised, and enthusiasm for the project. Some of the clinical coordinators for this year had participated in an advisory capacity during the first year of the program. As noted, they attended a training session conducted by project staff and the instructional coordinator/teacher.

Students

Students were selected by personnel from the participating schools. Students were at least sixteen years old with junior or senior standing and had completed or were concurrently enrolled in Biology I. Because of the off-campus clinical experiences, students had to have demonstrated sufficient maturity and appropriate social behavior to be admitted to the program. Drops were handled in accordance with the policies and procedures of the individual schools and in consultation with the instructional coordinator/teacher.

There were from one to five students per site. The site facilitators were responsible for monitoring student activity at their sites and were the communication liaisons with the instructional coordinator/teacher and EIMC. A total of 19 students at seven rural school districts participated in the program.

Instruction

Health Occupations I was taught as a two-unit course encompassing two hours of instruction daily. The instructional coordinator/teacher met with the students via audioconference one hour per day five days a week for the first eight weeks. The second hour each day was used for supplemental activities, such as individualized study, videotapes, computer-assisted instruction, and in-class demonstrations by local experts. Other communications were conducted through electronic mail and the postal service. After the first eight weeks, the students met with the instructional coordinator/teacher for one hour two days per week. Again, the second hour was used for individualized study or other supplemental activity. On the remaining three days of the week, the students spent the two-hour blocks observing and assisting at the clinical rotation sites. During their clinical experiences, students had the opportunity to associate with health professionals to discuss problems and issues and to receive feedback. Each student participated in a total of six four-week clinical rotations. During each clinical rotation, the student completed the extensive self-study packet that related to the rotation to which she/he had been assigned.

Student performance was monitored in several ways. General conduct—attendance, cooperation, attitude—was observed by the site facilitators and clinical supervisory personnel. Scholastic performance was assessed in traditional ways. Students were evaluated on the quality of written assignments, periodic exams, final examinations, and class participation. Performance in the clinical rotation was evaluated on the basis of attendance, promptness, attitude, appropriateness of attire, initiative, and written observational summaries. Timely feedback was provided orally and in writing by the

teacher, clinical supervisor, and, as appropriate, site facilitators or other school personnel. Six-weeks and final grades were reported by the site facilitators to the school registrars for inclusion on the students' permanent record cards. (The teacher will retain her grade book for five years as documentation of the determination of final grades.) Competency profiles were kept by the teacher for each student. The competency profiles will be stored at EIMC for five years for required vocational follow-up reports.

Textbooks were purchased by the schools. All other classroom materials were provided by EIMC.

Results and Accomplishments of the Project

The project was able to successfully meet all of its original goals. Health Occupations I was taught for the entire year to 16 students in seven rural districts with no major problems. The distance learning delivery system for a class including clinical experiences was developed, field-tested, and refined.

Evaluation Procedures and Findings

The program evaluation consisted of both formative and summative evaluations to ensure quality control for both this year's and future classes.

The first part of the evaluation process was an attitude questionnaire used to determine any apprehensions that students might have had about the delivery system. Any apprehensions were then diffused by project personnel.

The second step in the formative evaluation consisted of EIMC's regular contacts with program personnel. These included both verbal and written contacts. Site facilitators submitted regular reports to the program manager and were asked for evaluative comments during regular group meetings. The program manager visited each site once during the year to monitor the project and met with students to gather their reactions to the entire program. Clinical personnel were asked to evaluate the organization and execution of the clinical rotation program. Almost daily contact was maintained with the teacher. Any potential problems were immediately reported and resolved.

Procedures and forms were developed for students to report any potential problems to the appropriate program personnel. During their clinical rotations, students were asked to submit weekly reports on their clinical experiences. These reports were used both to support the teacher's understanding of their progress and to monitor the effectiveness of the clinical program.

For the summative evaluation, student evaluations of the course and delivery system were solicited at the end of the school year. The instructor and the clinical coordinators analyzed student achievement and compared it with their experiences in traditional settings. The questionnaire measuring attitudes toward distance learning was readministered at the end of the school year, and the results were compared to those of the initial administration.

Very few problems which adversely affected instruction were encountered during the year. The infrequent minor problems were readily corrected.

Evidence of the students' positive feelings for the class was demonstrated by the low attrition rate. The attrition rate for the class was 1 in 19, or 5.3%. Of the 19 students who

began the program, 16 were involved for the entire year. Of the three students who left the program, one moved to another district during the first month of school, one graduated from high school in January, and one chose not to continue in the program at the semester break. The student who dropped the class was a senior who reported that she did not want to work as much as the class required during her senior year. Evidence also exists which indicates that the program was instrumental in preventing a dropout. One of the students became pregnant during the year and might have dropped out of school except that she reported that she liked the Health Occupations I class and clinical rotations so much. She made up her missed assignments and graduated with her class in May.

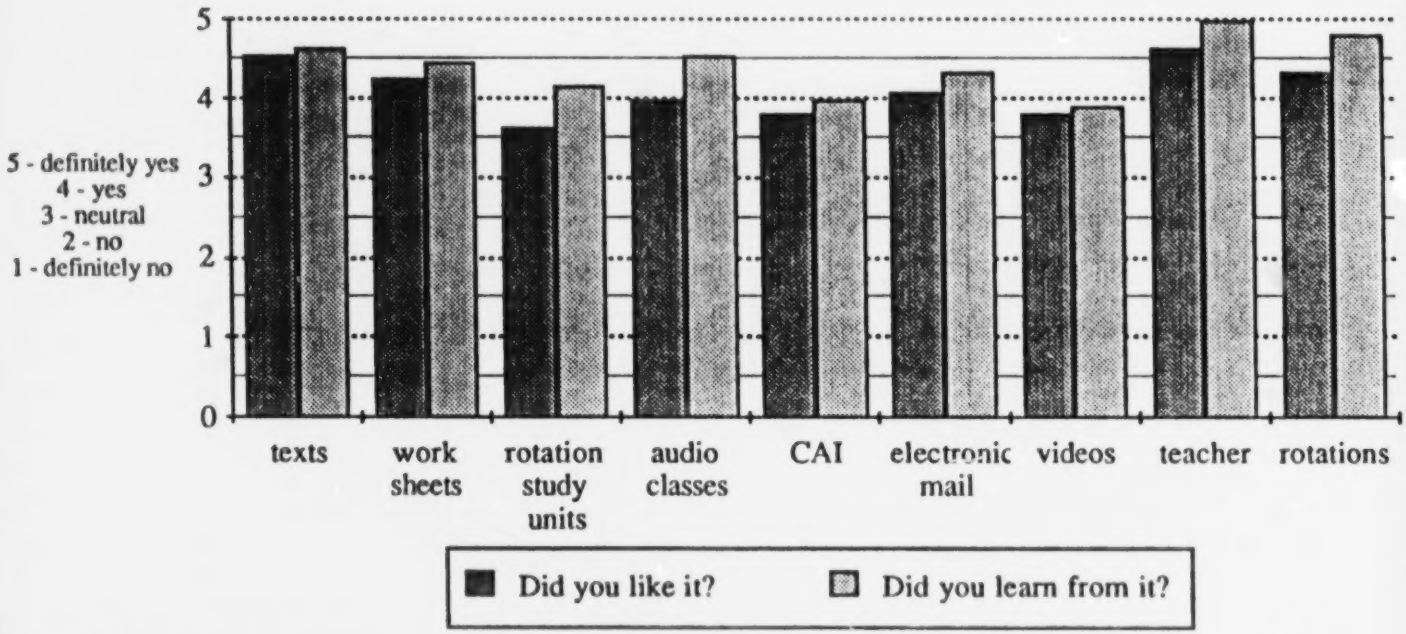
On the summary evaluation, students in this Health Occupations I class rated both the classroom and clinical experiences highly. First, students were asked to rate each component of the delivery system. As Figure 1 shows, all of the components rated highly in terms of how much the students liked them and how much they learned from them. Furthermore, students stated that, when compared to typical classroom courses, they learned more from this class, worked harder in this class, enjoyed this class more, and had the same levels of interaction with the teacher. Figures 2 through 5 graphically demonstrate these results.

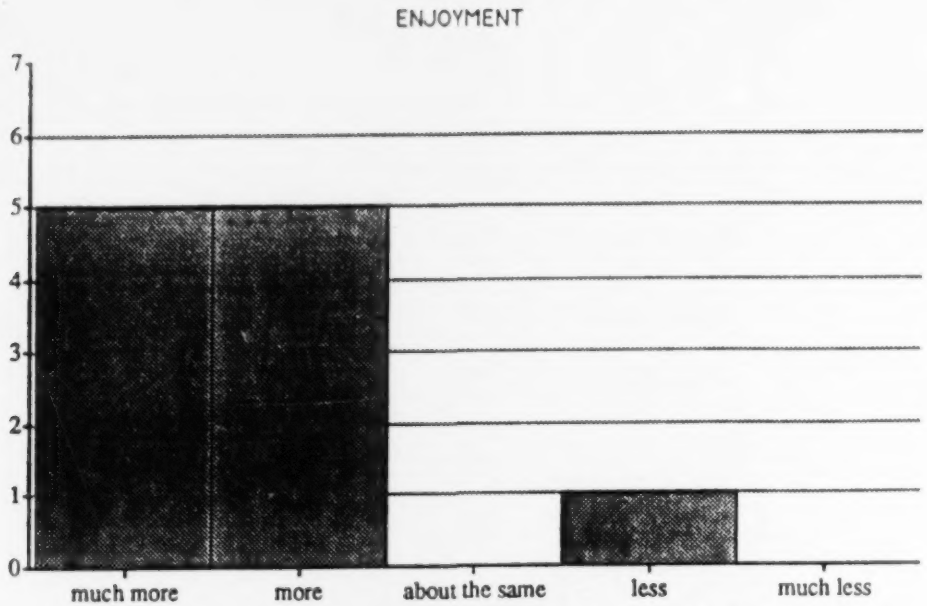
When the initial and final attitude questionnaires were compared, no significant differences were found. This would suggest that these students were not initially anxious about technology-based delivery systems.

Further evidence of the success of the program was indicated by the very favorable reactions of the public to the program. Most of clinical supervisors were very enthusiastic about the program and wanted to see it continued and expanded. The press also reacted favorably to the program. Articles describing the program were published in many of the local newspapers in participating communities. The *Texas Lone Star* magazine, the official publication of the Texas Association of School Boards, also enthusiastically praised the program.

Finally, the interactive audio was so suitable and reliable for distance learning that EIMC made a major investment in a 24-port telecommunications bridge, which will operate in health occupations and other distance learning courses.

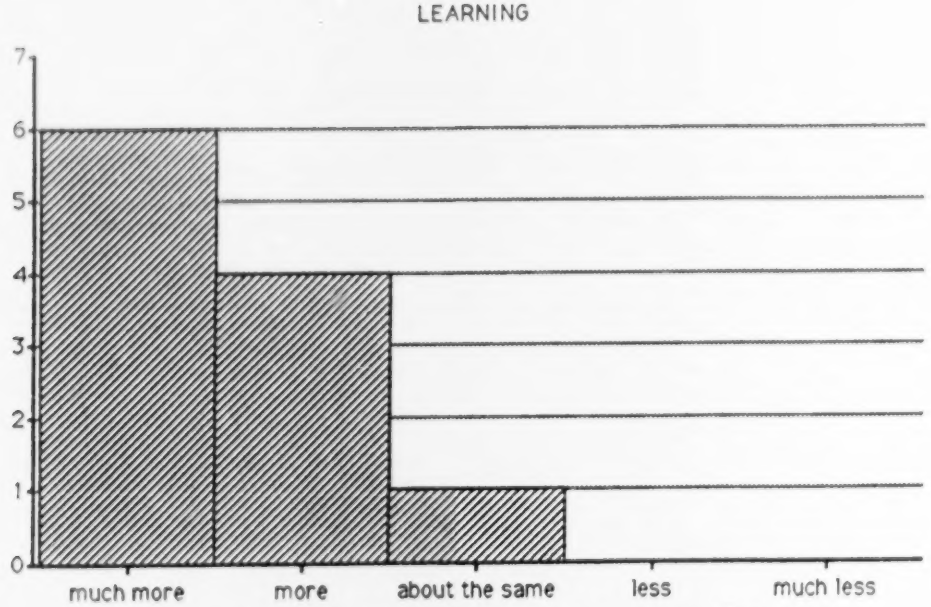
Figure 1.
Student evaluation of components of the delivery system.





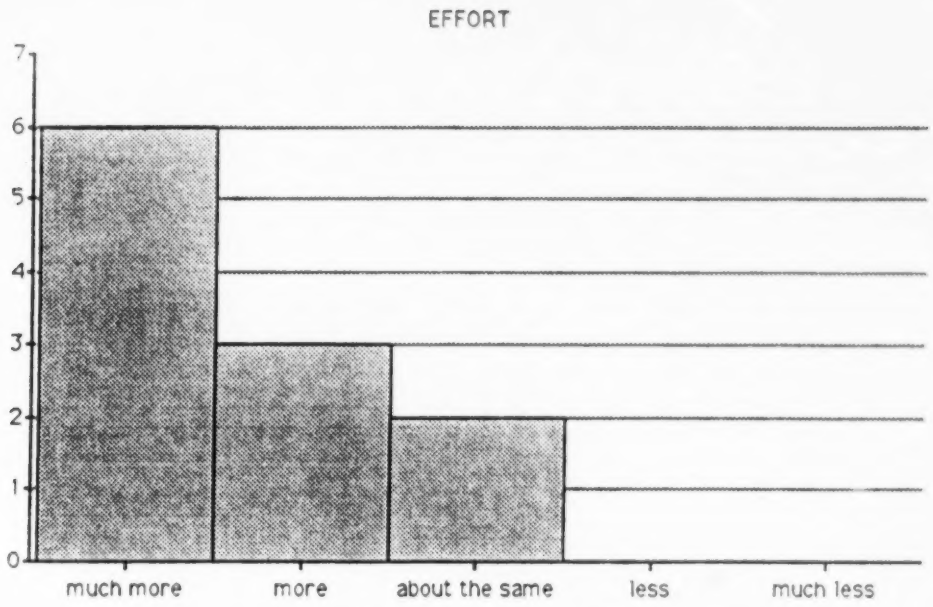
Compared to the other classes that you have taken at your high school, did you *like* the HO I class more or less?

Figure 2.



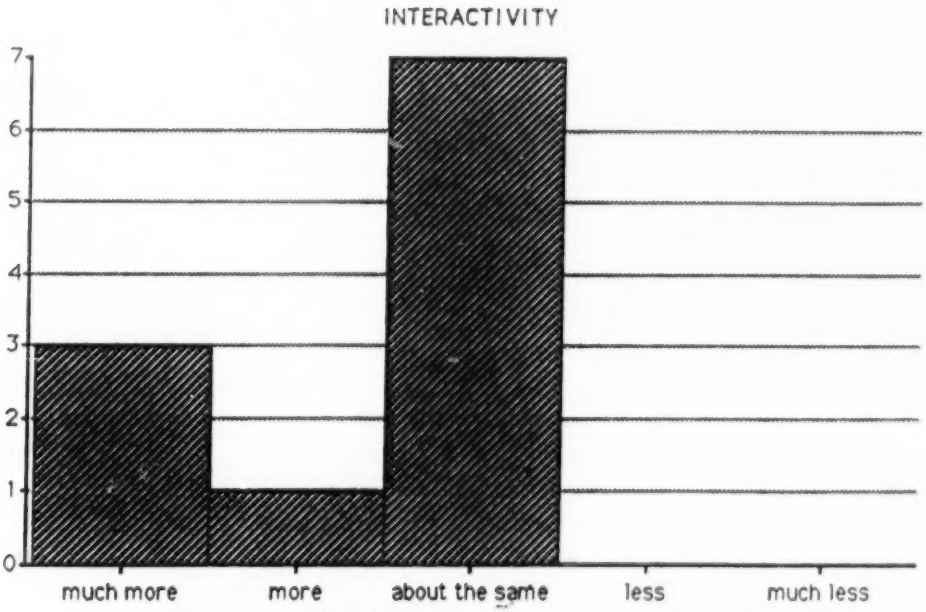
Compared to the other classes that you have taken at your high school, did you *learn* more or less in the HO I class?

Figure 3.



Compared to the other classes that you have taken at your high school, did you have more or less *work* in the HO I class?

Figure 4.



Compared to the other classes that you have taken at your high school, did you *ask* more questions or fewer questions in the HO I class?

Figure 5.

Conclusions, Implications, and Recommendations for the Future

The two health occupations courses designed for distance learning, Health Occupations I (1988-89) and Health Care Science (1987-88), have demonstrated that they can be successful in helping meet the needs of rural communities and the students in rural districts by offering alternatives they would not otherwise have. Furthermore, these distance learning courses can accomplish this at a reasonable cost, when compared with other delivery systems. These facts have tremendous implications for education in Texas, because of the large number of small rural districts.

Therefore, the following conclusions and recommendations are being made. One, the third year of health occupations education, Health Occupations II, should be developed for use on this delivery system so that students have the option of taking a complete program of instruction. Two, expansion of the number of districts served should take place, so that more students have these additional options. Third, state funding for distance learning must continue until it expands its base to the point at which it can become self-supporting, which is EIMC's goal. Fourth, classes in other vocational and academic program areas that are not available to rural students should be considered for development and delivery using this system. And, fifth, providers of in-service training should consider using distance learning as a delivery system. Districts could greatly reduce travel expenses by using this system.